chapter, using a 2.0-decimeter polarimeter tube and calculate the specific rotation on an anhydrous basis.

(6) *Infrared absorption spectrum.* Proceed as directed in §436.211 of this chapter, using the sample preparation method described in paragraph (b)(2) of that section.

(7) *Lincomycin B content.* Proceed as directed in §436.306 of this chapter.

(8) *Identity.* Proceed as described in §436.306 of this chapter.

(9) *Crystallinity.* Proceed as directed in §436.203(a) of this chapter.

[39 FR 19161, May 30, 1974, as amended at 46 FR 3839, Jan. 16, 1981; 50 FR 19921, May 13, 1985]

### §453.30a Sterile lincomycin hydrochloride monohydrate.

(a) *Requirements for certification*—(1) *Standards of identity, strength, quality, and purity.* Lincomycin hydrochloride monohydrate is the monohydrated hydrochloride salt of lincomycin. It is freely soluble in water and soluble in acetone and dimethylformamide. It is so purified and dried that:

(i) Its potency is not less than 790 micrograms of lincomycin per milligram.

(ii) It is sterile.

(iii) [Reserved]

(iv) It is nonpyrogenic.

(v) It contains no depressor substances.

(vi) Its moisture content is not less than 3.0 percent and not more than 6.0 percent.

(vii) Its pH in an aqueous solution containing 100 milligrams per milliliter is not less than 3.0 and not more than 5.5.

(viii) Its specific rotation in an aqueous solution at 25° C. is not less than +135° and not more than +150°.

(ix) It passes the infrared identity test.

(x) Its content of lincomycin B is not more than 5 percent.

(xi) It passes the identity test if the elution pattern of the lincomycin sample compares quantitatively to that of the lincomycin working standard under identical conditions of gas liquid chromatography.

(xii) It is crystalline.

(2) *Labeling.* It shall be labeled in accordance with the requirements of §432.5(b) of this chapter.

(3) *Requests for certification; samples.* In addition to complying with the requirements of §431.1 of this chapter, each such request shall contain.

(i) Results of tests and assays on the batch for potency, sterility, pyrogens, depressor substances, moisture, pH, specific rotation, infrared absorption spectrum, lincomycin B content, identity, and crystallinity.

(ii) Samples required:

(*a*) For all tests except sterility: 10 packages, each containing approximately 300 milligrams.

(*b*) For sterility testing: 20 packages, each containing approximately 300 milligrams.

(b) *Tests and methods of assay*—(1) *Potency.* Use either of the following methods; however, the results obtained from the gas liquid chromatography assay shall be conclusive.

(i) *Microbiological turbidimetric assay.* Proceed as directed in §436.106 of this chapter, preparing the sample for assay as follows: Dissolve an accurately weighed sample in sufficient sterile distilled water to obtain a stock solution of convenient concentration. Further dilute an aliquot of the stock solution with sterile distilled water to the reference concentration of 0.5 microgram of lincomycin per milliliter (estimated).

(ii) *Gas liquid chromatography assay.* Proceed as directed in §436.306 of this chapter.

(2) *Sterility.* Proceed as directed in §436.20 of this chapter, using the method described in paragraph (e)(1) of that section.

(3) [Reserved]

(4) *Pyrogens.* Proceed as directed in §436.32(a) of this chapter, using a solution containing 0.5 milligram of lincomycin per milliliter.

(5) *Depressor substances.* Proceed as directed in §436.35 of this chapter.

(6) *Moisture.* Proceed as directed in §436.201 of this chapter.

(7) *pH.* Proceed as directed in §436.202 of this chapter, using an aqueous solution containing 100 milligrams per milliliter.

(8) *Specific rotation.* Accurately weigh 500 milligrams of lincomycin hydrochloride monohydrate in a 25 milliliter, glass-stoppered volumetric flask and fill to lincomycin B content, crystallinity, and volume with distilled water. Proceed as directed in § 436.210, using a 2.0-decimeter polarimeter tube and calculate the specific rotation on an anhydrous basis.

(9) *Infrared absorption spectrum.* Proceed as directed in § 436.211 of this chapter, using the sample preparation method described in paragraph (b)(2) of that section.

(10) *Lincomycin B content.* Proceed as directed in § 436.306 of this chapter.

(11) *Identity.* Proceed as directed in § 436.306 of this chapter.

(12) *Crystallinity.* Proceed as directed in § 436.203(a) of this chapter.

[39 FR 19161, May 30, 1974, as amended at 46 FR 3839, Jan. 16, 1981; 46 FR 60568, Dec. 11, 1981; 50 FR 19921, May 13, 1985]

## Subpart B—Oral Dosage Forms

### § 453.120 Clindamycin hydrochloride hydrate capsules.

(a) *Requirements for certification*—(1) *Standards of identity, strength, quality, and purity.* Clindamycin hydrochloride hydrate capsules are composed of clindamycin hydrochloride hydrate and one or more suitable and harmless diluents and lubricants. Each capsule contains clindamycin hydrochloride hydrate equivalent to 75, 150, or 300 milligrams of clindamycin. Its content of clindamycin is satisfactory if it is not less than 90 percent and not more than 120 percent of the amount of clindamycin that it is represented to contain. The moisture content is not more than 7.0 percent. The clindamycin hydrochloride hydrate used conforms to the standards prescribed by § 453.20(a)(1).

(2) *Labeling.* It shall be labeled in accordance with the requirements of § 432.5 of this chapter.

(3) *Requests for certification; samples.* In addition to complying with the requirements of § 431.1 of this chapter, each such request shall contain:

(i) Results of tests and assays on:

(*a*) The clindamycin hydrochloride hydrate used in making the batch for clindamycin content, microbiological activity, moisture, pH, crystallinity, and identity.

(*b*) The batch for clindamycin content and moisture.

(ii) Samples required:

(*a*) The clindamycin hydrochloride hydrate used in making the batch: 10 packages, each containing approximately 300 milligrams.

(*b*) The batch: A minimum of 30 capsules.

(b) *Tests and methods of assay*—(1) *Clindamycin content* (*vapor phase chromatography*). Proceed as directed in § 436.302 of this chapter, except:

(i) *Preparation of clindamycin sample and working standard solutions.* Accurately weigh a portion of the clindamycin working standard equivalent to about 45 milligrams of clindamycin and transfer to a 15-milliliter glass-stoppered centrifuge tube. Empty 20 capsules, collecting the contents quantitatively. Weigh the powder and determine the average capsule fill weight. Mix the powder and accurately weigh a portion containing the equivalent of about 45 milligrams of clindamycin into a second 15-milliliter glass-stoppered centrifuge tube. Add 3 milliliters of 1 percent sodium carbonate solution and 3 milliliters of chloroform to each tube. Shake the solution vigorously and then centrifuge. Remove the top aqueous layer and add approximately 1 gram of anhydrous sodium sulfate to dry the chloroform layer. Place a 1-milliliter aliquot of the chloroform solution into a 15-milliliter centrifuge tube, add 1 milliliter of internal standard and 0.6 milliliter of acetic anhydride. Agitate the vials to insure complete mixing of the liquids.

(ii) *Calculations.* Calculate the clindamycin content of the capsules as follows:

$$\text{Milligrams of clindamycin per capsule} = \frac{R_u \times W_s \times f \times W_a}{R_s \times W_u}$$

where:

$R_u$=Area of the clindamycin sample peak (at a retention time equal to that observed for the clindamycin standard)/Area of internal standard peak;

$R_s$=Area of the clindamycin standard peak/Area of internal standard peak;

$W_s$=Weight of clindamycin working standard in milligrams;

$W_u$=Sample weight in milligrams;